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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/624,810	07/24/2000	Robert William Bruce	13DV13228	6522

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EXAMINER

ZERVIGON, RUDY

ART UNIT	PAPER NUMBER
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1763

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DATE MAILED: 07/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/624,810

Applicant(s)

BRUCE ET AL.

Examiner

Rudy Zervigon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 17 May 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on May 17th, 2002 have been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.
2. The Patent and Trademark Office no longer makes drawing changes. See 1017 O.G. 4. It is applicant's responsibility to ensure that the drawings are corrected. Corrections must be made in accordance with the instructions below.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. **Correction of Informalities -- 37 CFR 1.85**

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the "Notice of Allowability." Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. **Corrections other than Informalities Noted by Draftsperson on form PTO-948.**

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

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Timing of Corrections

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.185(a). Failure to take corrective action within the set (or extended) period will result in **ABANDONMENT** of the application.

Claim Objections

3. Claim 1 is objected to because of the following informalities: “with and the crucible” should be changed to “with the crucible”. Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6, 7, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Dietrich et al (U.S. Pat. 4,988,844). Dietrich et al teaches an electron beam (10, 11; Figure 1; column 2, lines 40-51) melting furnace (Figure 1 – “electron beam melting furnaces”; column 2, lines 11-12) with a vacuum chamber (1, Fig.1; column 2, lines 40-55). Dietrich et al further teaches a crucible (6, Fig.1; column 2, lines 40-55) within the vacuum chamber and a material (“bath of molten evaporite”; column 2, lines 40-55) surrounded by and contained within the crucible. Dietrich et al also teaches electron beam guns (10, 11; Fig.1; column 2, lines 40-55) that can project an electron beam onto the surface of the coating material (Fig.1). Each electron beam gun having a higher intensity at a location between the surface of the coating material and the crucible than at a central region of the surface of the coating material – Here, Dietrich et al teaches that a combination of two electron beam guns can produce the claimed intensity profile in the x direction as shown in the graph of Figure 3 (38). However, from the arcuate (26,27, Fig.1) projection of each electron beam as shown and described (column 3, lines 38-40, 10-11, 25-26), Dietrich et al teaches that each electron beam produces the claimed intensity profile in the y direction (perpendicular direction, into/out of the plane of Figure 1) as shown in the graph of Figure 3 (38).

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Dietrich et al teaches the capability (column 2, lines 53-58; “despite the force urging them radially toward the outside”; column 3, lines 25-30) of projecting each electron beam onto a surface portion of the crucible contiguous with the “bath of molten evaporite” (column 2, lines 40-55). Dietrich et al teaches the capability, in the above cited portions of the patent, a beam pattern (as shown in Figure 11 of the application) with proximal and distal points at the perimeter of the beam pattern – Here, Dietrich et al already establishes the capability of forming one arcuate beam consisting of a semi-circle as described (column 3, lines 25-30). It is evident from the Dietrich et al deflection control (column 2, lines 53-58; column 4, lines 51-55) of the electron beams that, once “conveyor rod 5” (column 2, line 43) is raised the shaded region 4, Figure 2 becomes smaller and the beams 26 and 27 increase in arc length (all else constant). From the teachings of the beam geometry control above, it is appreciated that Dietrich can provide means for projecting a separate beam pattern (one of two) on the crucible surface (15, Figure 3) with a controlled intensity (38, Figure 3)

4. Claims 1-10 are rejected under 35 U.S.C. 102(b) based upon a public use or sale of the invention.

Applicant states, “the applications were filed more than one year after the fabrication, purchase and installation of the inventions disclosed in the applications”. Therefore, the invention was in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Applicant argues that the public use was experimental, however the applicant's arguments are not convincing. Experimental use “ends with an actual reduction to practice” (RCA Corp. v. Data Gen. Corp., 887 F.2d 1056, 1061, 12 USPQ2d 1449, 1453 (Fed. Cir. 1989)). A machine is

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reduced to practice when it is assembled, adjusted and used (Corona v. Dovan, 273 U.S. 692, 1928 C.D. 252 (1928)). Additionally, the experimental use activity exception is personal to an applicant. In the instant application, the activity was by a third party.

For the reasons given, the invention was in public use or on sale in this country, more than one year prior to the date of application for patent in the United States, and therefore constitutes prior art under 35 U.S.C. 102(b).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dietrich et al (U.S. Pat. 4,988,844), as applied to claims 1-4, 6, and 7 above, and further in view of no additional references. Dietrich et al does not precisely teach the relative intensity, in percentages, as a function of position over a dimension of the crucible (column 4, line 63 – column 5, line 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to configure the Dietrich et al relative intensity, in percentages, as a function of position over a dimension of the crucible whereby the intensity of the beam pattern at the proximal and distal points is about 30% to about 70% less than the intensity elsewhere at the perimeter of the beam.

Motivation for configuring the Dietrich et al relative intensity, in percentages, as a function of position over a dimension of the crucible whereby the intensity of the beam pattern at the proximal and distal points is about 30% to about 70% less than the intensity elsewhere at the perimeter of the beam is drawn to applying the electron beams “symmetrically to the melting bath” (column 4, lines 51-55)

Response to Arguments

5. Applicant's arguments filed May 17, 2002 have been fully considered but they are not persuasive.

6. Applicant's position that Dietrich does not teach "the electron beam having a higher intensity at an interface between the surface of the coating material and the crucible than at a central region of the surface of the coating material" is not persuasive. In particular, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). It has been well established that apparatus claims must distinguish themselves from the prior art in terms of structure rather than function. See MPEP 2114. It was appreciated in the last office action that Dietrich indeed supports apparatus control of the electron beam geometry and location:

Dietrich et al teaches the capability (column 2, lines 53-58; "despite the force urging them radially toward the outside"; column 3, lines 25-30) of projecting each electron beam onto a surface portion of the crucible contiguous with the "bath of molten evaporite" (column 2, lines 40-55). Dietrich et al teaches the capability, in the above cited portions of the patent, a beam pattern (as shown in Figure 11 of the application) with proximal and distal points at the perimeter of the beam pattern – Here, Dietrich et al already establishes the capability of forming one

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arcuate beam consisting of a semi-circle as described (column 3, lines 25-30). It is evident from the Dietrich et al deflection control (column 2, lines 53-58; column 4, lines 51-55) of the electron beams that, once “conveyor rod 5” (Figure 1, column 2, line 43) is raised the shaded region 4, Figure 2 becomes smaller and the beams 26 and 27 increase in arc length (all else constant).

7. Applicant’s position that Dietrich does not teach lower intensity regions that are not “distal and proximate” relative to the guns 10 and 11 is not persuasive. Specifically, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.


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